

| Generative AI Overview for Project Managers

ChatGPT Prompt Engineering Guide

| Tailoring Project Management Prompts for ChatGPT

- ▶ When tailoring prompts for ChatGPT or other AI chatbots, make your instructions as clear and specific as possible.
- ▶ Use short, clear, concise sentences.
- ▶ Limit the scope.
- ▶ Revise your questions based on the response you receive.

EXAMPLE FORMAT:

Act as a {role}. {Question} with {action} using a {tone}.

EXAMPLE:

Act a senior IT project manager for every question that follows and answer with quantifiable results using a personal tone.

| Most Useful Output Formats

► ChatGPT can generate data in the following formats:

Plain Text	Plain Text files store human-readable data without formatting or styling, using simple text editors
ASCII	ASCII is a standard code used by computers to represent letters, numbers, and symbols for sharing text
HTML	HTML is the standard language for creating web pages with tags for defining structure, layout, and styling
JavaScript	JavaScript is a programming language used to create dynamic and interactive content on web pages
CSV	CSV stores tabular data as comma-separated values in a simple text-based format
Table	A table is used to organize information in rows and columns, making it easy to read and understand

Make a Decision

PROMPT:

I am working with a software development team facing a decision: outsource or hire an in-house designer. Outsourcing would cost \$20K up front and \$5K per month for 6 months. Our in-house designer would cost \$60K in salary. Show me the total cost for each using a detailed cost-benefit analysis in a table format. Explain your suggestion.



Sure, let's perform a cost-benefit analysis for both options: outsourcing and hiring an in-house designer. For this analysis, we'll consider a 6-month period.



Outsourcing:

Cost Component	Cost (\$)
Upfront Cost	\$20,000
Monthly Cost (6 months)	\$30,000
Total Cost	\$50,000

Hiring an In-House Designer:

Cost Component	Cost (\$)
Salary (6 months)	\$60,000
Total Cost	\$60,000

Explanation and Suggestion:

Now, let's break down the cost-benefit analysis:

- 1. **Outsourcing:**
 - The upfront cost for outsourcing is \$20,000.
 - The monthly cost for outsourcing is \$5,000 for 6 months, totaling \$30,000.
 - The total cost for outsourcing over 6 months is \$50,000.
- 2. **Hiring an In-House Designer:**
 - The salary for hiring an in-house designer is \$60,000 for 6 months.

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Create a Persuasive Business Case

PROMPT:

Trinidad Foods wants to introduce a new loyalty program to increase customer retention and sales. The program will cost \$50K to implement but is projected to increase revenue by 10% in the first year. This means the store will generate an additional \$100K in revenue, yielding a net profit of \$50K. The ROI for the loyalty program investment is 100%.

Compose a business case to the decision maker that is clear and concise and uses a persuasive and personal tone. Highlight in bold any important information.



Subject: Elevating Customer Loyalty and Profitability: Introducing Trinidad Foods' New Loyalty Program



Dear [Decision Maker],

I hope this message finds you well. As the [Your Title/Position] of Trinidad Foods, I am delighted to present a compelling business case for the introduction of our innovative **loyalty program**. This strategic initiative promises to bolster customer retention, drive sales, and significantly increase revenue and profitability for our esteemed organization.

****1. Unlocking the Power of Loyalty:**

At Trinidad Foods, we believe that customer loyalty is the heart of our business. Our new loyalty program is designed to cultivate strong and lasting relationships with our valued customers. By appreciating and rewarding their loyalty, we aim to create an emotional bond that keeps them coming back to our store for their shopping needs.

****2. Investment and Projected ROI:**

To bring this transformative loyalty program to life, we propose an investment of **\$50,000**. Our thorough market analysis and financial projections indicate that this program will boost revenue by an impressive **10%** in its first year. This translates to an additional **\$100,000** in revenue, leading to a substantial net profit of **\$50,000**. With a **100%** ROI, this program emerges as a highly lucrative and low-risk investment.

****3. Win-Win for Customers and Trinidad Foods:**

Our loyalty program is a win-win proposition for both our customers and Trinidad Foods. Customers will enjoy a host of exclusive benefits, including personalized discounts, special offers, and early access to promotions. By enriching their shopping experience, we expect increased customer satisfaction and engagement. For Trinidad Foods, this translates

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Create a Project Charter

PROMPT:

A 10,000 square meter commercial building in Accra, Ghana is proposed to meet the growing demand for commercial space. It must comply with building codes, meet modern business needs, and stay within a \$20M budget and 24-month timeline. Create a project charter and include plans for design and construction, procurement, quality checks, and building code compliance. The project manager leads 20 team members. Key stakeholders include the client, government authorities, and the general public.



Project Charter: Modern Commercial Building in Accra, Ghana



1. Introduction:

This project charter outlines the plan for the development of a state-of-the-art commercial building in Accra, Ghana. The proposed building will cover an area of 10,000 square meters and will address the increasing demand for modern commercial spaces in the area. The project aims to adhere to building codes, cater to contemporary business needs, and be completed within the specified budget of \$20 million and a timeline of 24 months. The successful execution of this project is crucial in meeting the requirements of the client, government authorities, and the general public.

2. Project Objectives:

- Design and construct a modern commercial building covering an area of 10,000 square meters.
- Comply with all relevant building codes and regulations set forth by the local authorities.
- Meet the needs and preferences of modern businesses and potential tenants.
- Manage and control costs effectively to stay within the allocated budget of \$20 million.
- Complete the entire project, including design, construction, and quality checks, within the timeline of 24 months.
- Ensure that the final building aligns with safety, security, and environmental standards.
- Foster effective communication and collaboration among the project team, stakeholders, and key decision-makers.
- Minimize potential risks and uncertainties through proactive risk management strategies.

3. Key Stakeholders:

- Client: The primary entity requesting the project and funding its execution.
- Government Authorities: The local regulatory bodies responsible for enforcing buildi

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Manage Scope Creep

PROMPT:

I am a project manager developing a new mobile app with an original scope of 10 tablets for users. However, the is client adding new requirements, including five new tablets, two user roles and three features which include single sign-on, Microsoft Azure cloud security, and ChatGPT bot integration. The client insists the app must meet all these requirements. The team estimated the additions will extend the timeline by 3 months and cost \$50K; the original budget was \$60K. I need to manage the scope creep and communicate with the client about the impact on the project timeline and budget.

Create a requirements traceability matrix in a table format. Help me manage the scope creep and communicate with the client about the impact on the project timeline and budget. Highlight the suggested solution(s).



Requirements Traceability Matrix (RTM)



Requirement ID	Requirement Description	Impact on Timeline	Impact on Budget
RQ-001	Mobile App for 10 tablets	No Change	No Change
RQ-002	5 Additional Tablets	+3 Months	+\$30,000
RQ-003	2 User Roles	+2 Months	+\$20,000
RQ-004	Single Sign-On	+1 Month	+\$10,000
RQ-005	Azure Cloud Security	+1 Month	+\$10,000
RQ-006	ChatGPT Bot Integration	+1 Month	+\$10,000

Impact Analysis and Suggested Solution(s):

- Mobile App for 10 tablets (RQ-001):** The original scope of developing the mobile app for 10 tablets remains unchanged. No additional time or budget is required for this requirement.
- 5 Additional Tablets (RQ-002):** The addition of five new tablets will extend the timeline by approximately 3 months and incur an extra cost of \$30,000. **Suggested Solution:** Discuss with the client to prioritize the tablet support or consider a phased approach where the initial release targets the primary devices.
- 2 User Roles (RQ-003):** The inclusion of two new user roles will add around 2 months to the development timeline and incur an additional cost of \$20,000. **Suggested Solution:** Evaluate the necessity of all user roles in the initial release and consider postponing the less critical roles to a subsequent update.
- Single Sign-On (RQ-004):** Implementing single sign-on will add approximately 1 month to the timeline and require an additional budget of \$10,000. **Suggested Solution:** Discuss with the client if this feature is essential for the initial release or can be deferred to a future update.

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Calculate Earned Value Management (EVM)

PROMPT:

A software development project has a \$100K budget and a timeline of 6 months. After 3 months, the actual cost (AC) is \$60K and the project is 50% complete.

Am I over or under budget? Behind or ahead of schedule? What is the Earned Value (EV), Estimate to Complete (ETC), and Variance at Completion (VAC)? Show this in a table format and highlight the explanation in bold.



Metrics	Formula	Calculation	Result
Budgeted Cost (BAC)	-	\$100,000	-
Actual Cost (AC)	-	\$60,000	-
Percent Complete (PC)	-	50%	-
Earned Value (EV)	$EV = PC \times BAC$	$50\% \times \$100,000$	\$50,000
Estimate to Complete (ETC)	$ETC = BAC - EV - AC$	$\$100,000 - \$50,000 - \$60,000$	\$40,000
Variance at Completion (VAC)	$VAC = BAC - EAC$	$\$100,000 - \$100,000$	\$0



Summary:

The table provides a clear representation of the metrics and calculations for the software development project. The project is currently on budget, with a Variance at Completion (VAC) of \$0. This means that the project is neither over budget nor under budget. However, without the Planned Value (PV) information, we cannot determine the schedule performance. Nevertheless, the table provides a comprehensive view of the project's financial status at the given point in time.

Explanation:

The table and calculations illustrate the key metrics of the software development project. The Budgeted Cost (BAC) is the total budget allocated for the project, set at \$100,000. The Actual Cost (AC) represents the actual expenditure on the project after three months, amounting to \$60,000. The Percent Complete (PC) indicates that the project is 50% complete at this stage.

The Earned Value (EV) is the value of the work completed at the given point in time, calculated by multiplying the Percent Complete (PC) by the Budgeted Cost (BAC). In

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Create a Power/Interest Grid

PROMPT:

After conducting a stakeholder analysis for our project to build a new solar farm, it is obvious that our Energy Minister, Ken, and project sponsor, Kevin, should be managed closely to ensure their needs are met. Our project coordinator, Carol, does not seem to have much influence on the project, but she does have a keen interest in it. Our vendor, Alyssa, does not have any influence, but she has a high interest in the project.

Show me, in detail, a power/interest grid in a table format based on “keep satisfied,” “manage closely,” “monitor,” and “keep informed.”



Stakeholder	Power	Interest	Power/Interest Grid
Energy Minister (Ken)	Manage Closely	High Interest	Manage Closely
Project Sponsor (Kevin)	Manage Closely	High Interest	Manage Closely
Project Coordinator (Carol)	Keep Informed	Keen Interest	Keep Informed
Vendor (Alyssa)	Monitor	High Interest	Monitor



Power/Interest Grid Explanation:

- 1. **Energy Minister (Ken):** Ken holds significant power in the project as the Energy Minister, and he has a high interest in its success. As he is a key decision-maker and holds authority over energy-related projects, it is crucial to manage him closely to ensure his needs and expectations are met throughout the solar farm development.
- 2. **Project Sponsor (Kevin):** Kevin is the Project Sponsor, and he also possesses considerable power and interest in the solar farm project. As the sponsor, he provides the necessary resources and support to the project. To ensure alignment with project objectives and secure ongoing sponsorship, Kevin should be managed closely.
- 3. **Project Coordinator (Carol):** Carol has limited power to influence project decisions, but she demonstrates keen interest in the solar farm project. While she may not require detailed management, it is important to keep her informed about project updates and progress. This will help maintain her engagement and enthusiasm for the project.
- 4. **Vendor (Alyssa):** Alyssa, the vendor, may not have significant power to impact project outcomes, but she has a high interest in the success of the solar farm. As a vendor, she will be providing essential goods or services, and therefore, it is prudent to monitor her involvement and ensure open communication to address any concerns promptly.

By using the power/interest grid, the project team can strategically allocate resources

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Identify the Critical Path

PROMPT:

I am a project manager for a construction development project. The project has five activities:

- Activity 1 {predecessor = start and duration = 3 days}
- Activity 2 {predecessor = Activity 1 and duration = 3 days}
- Activity 3 {predecessor = Activity 1 and duration = 4 days}
- Activity 4 {predecessor = Activity 2 and duration = 8 days}
- Activity 5 {predecessor = Activity 3, 4 and duration = 4 days}

Show me, in a table format, the dependencies between the tasks and their corresponding early start (ES), early finish (EF), late start (LS), late finish (LF) times; float for each task; and all the paths with duration. Solve this and show your work concisely with the critical path and all other paths in days. Highlight the critical path with the shortest duration and least float value of 0 in bold.



Task	Dependencies	Duration	ES	EF	LS	LF	Float
Activity 1	Start	3 days	1	3	1	3	0
Activity 2	Activity 1	3 days	3	6	3	6	0
Activity 3	Activity 1	4 days	3	7	3	7	0
Activity 4	Activity 2	8 days	6	14	6	14	0
Activity 5	Activity 3, Activity 4	4 days	7	11	14	18	7



Critical Path: Activity 1 -> Activity 2 -> Activity 4 -> Activity 5

Duration: 11 days

Explanation:

- Activity 1 starts at day 1 and has a duration of 3 days, making its Early Start (ES) at day 1 and Early Finish (EF) at day 3. Since it has no successor, its Late Start (LS) and Late Finish (LF) are the same as the EF, resulting in a float of 0 days.
- Activity 2 depends on Activity 1 and starts at day 3 (EF of Activity 1) with a duration of 3 days. Therefore, its EF is day 6. As it has no successor other than Activity 4, its LS and LF are also the same, giving it a float of 0 days.
- Activity 3 depends on Activity 1 and starts at day 3 (EF of Activity 1) with a duration of 4 days. Hence, its EF is day 7. Like Activity 2, it has no other successor apart from Activity 5, making its LS and LF the same, resulting in a float of 0 days.
- Activity 4 depends on Activity 2 and starts at day 6 (EF of Activity 2) with a duration of 8 days. Consequently, its EF is day 14. As it has no other successor apart from Activity 5, its LS and LF are also the same, giving it a float of 0 days.
- Activity 5 depends on both Activity 3 and Activity 4. It starts at day 7 (EF of Activity 3) and day 14 (EF of Activity 4) with a duration of 4 days. Its EF is day 11, and its LS and LF are

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Create a Project Schedule

(Continued from Critical Path data)

PROMPT:
With the data from the previous critical path exercise, create a detailed project schedule with placeholder activity names.



Activity Name	Predecessor(s)	Duration (days)	ES (Early Start)	EF (Early Finish)	LS (Late Start)	LF (Late Finish)	Float (days)
Project Start	-	-	1	1	1	1	0
Site Survey	Project Start	3	2	4	2	4	0
Obtain Permits	Site Survey	5	5	9	5	9	0
Design Development	Obtain Permits	10	10	19	10	19	0
Material Procurement	Obtain Permits	6	10	15	10	15	0
Foundation	Design Development, Material Procurement	12	20	31	20	31	0
Structural Framing	Foundation	8	32	39	32	39	0
Roofing	Structural Framing	6	40	45	40	45	0
Electrical Wiring	Structural Framing	5	40	44	43	48	4
Plumbing	Structural Framing	4	40	43	44	48	5
Wall Construction	Structural Framing	7	40	46	40	46	0
Flooring	Wall Construction	6	47	52	47	52	0



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Create a Cause and Effect Diagram

PROMPT:

I am a construction project manager experiencing a delay in completion of a project. I want to identify the root cause(s) of the problem. In a diagram, categorize the possible causes into equipment, material, personnel, and weather-related issues. The quantifiable numeric data should show that material delays are the primary cause of the delay, accounting for 70% of the total project delay, followed by personnel shortages at 20% and weather-related issues at 10%.

Show me how to solve this using a horizontal detailed cause and effect diagram in ASCII and identify ways to mitigate the delay. Highlight the probable root cause in bold.



Sure! Let's create the horizontal cause and effect diagram (fishbone diagram) again with the percentages added to each category:   

```
perl                                                                    Copy code

      -----
      |                                     |
      |               Project Delay       |
      |                                     |
      |-----|
      |
      |-----V-----|               |-----V-----|               |-----V-----| |
      | Equipment | (10%) | Material | (70%) | Personnel | (20%) |
      |-----|----->|-----|----->|-----|----->|
      |
      |-----V-----|               |-----V-----|               |-----V-----|
      |
      | **Breakdown** | | **Material** | | **Shortage** | |
      |
      |-----10%-----| |-----70%-----| |-----20%-----| |
      |
      |               |               |               | | |
      |-----V-----|               |-----V-----|               |-----V-----|
      | **Weather** | | Equipment | | **Other** |
      | **Issues** 10% | | Issues 10% | | **Causes** |
      |-----10%-----| |-----10%-----| |-----10%-----|
```

Root Causes of Project Delay:

- **Material Delays:** As indicated by the percentage (70%), material delays are the primary cause of the project delay. This may include issues with the timely delivery of construction materials.

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Create User Stories

PROMPT:

A company requires an airline mobile app to allow frequent flyers to view and manage their upcoming flights. The app should enable users to make flight changes easily and stay organized. Success will be measured by the number of successful logins to the app, the number of flight changes made, and overall user satisfaction with the new feature. This data will inform future improvements to the app’s flight management functionality.

Create an agile user story in two tables. Use the following as a guideline: for the user story, create a sentence using the phrases “As a [persona],” “I want [what],” and “so that [desired outcome]”. The acceptance criteria use the Given-When-Then formula.



User Story: Flight Management Functionality



Story Narrative Number: US-01

Title	Flight Management Functionality
As a	Frequent flyer
I want	to view and manage my upcoming flights
So that	I can easily make flight changes and stay organized

Acceptance Criteria:

Given	a frequent flyer with an existing account on the airline mobile app
When	I log in to the app and access the flight management feature
Then	I should be able to see a list of all my upcoming flights with their details, including flight number, date, departure time, and destination.

Given	a frequent flyer with an upcoming flight
When	I view the details of a specific flight
Then	I should have the option to make changes to my flight, such as modifying the date, time, or destination.

Given	a frequent flyer making changes to their flight
When	I confirm the changes to my flight
Then	I should receive a confirmation message and see the updated flight details in my upcoming flights list.

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Manage Risk

PROMPT:
The Fukushima Daiichi nuclear disaster in 2011 demonstrated poor risk management. Despite a 10% chance of a tsunami exceeding the planned maximum of 5.7 meters, TEPCO did not revise safety measures. The resulting 14-meter tsunami caused a level-7 nuclear disaster, costing over US\$200 billion in damages and cleanup.

Show me how to solve this concisely using a detailed risk analysis table format. Highlight the suggested solution in bold.



Risk Event	Probability	Impact	Risk Level	Mitigation Strategy
Tsunami exceeding planned maximum	10%	Catastrophic (\$200B+)	High	Reevaluate safety measures based on updated risk assessment.
Other natural disasters (earthquakes, etc.)	Moderate (30%)	Significant (\$50B - \$200B)	Medium	Implement robust structural reinforcements and emergency protocols.
Human error in nuclear plant operation	Low (5%)	Severe (\$10B - \$50B)	Low	Conduct regular training and stringent operational procedures.
Cybersecurity breaches	Low (5%)	Moderate (\$1B - \$10B)	Low	Enhance digital security measures and continuous monitoring.
Equipment malfunction	Moderate (30%)	Moderate (\$1B - \$10B)	Medium	Regular maintenance and contingency plans for equipment failures.
Regulatory compliance issues	Low (5%)	Moderate (\$1B - \$10B)	Low	Establish thorough compliance procedures and regular audits.



Suggested Solution:

The Fukushima Daiichi nuclear disaster highlighted a critical risk event: a Tsunami exceeding the planned maximum. Despite a 10% probability, the impact was catastrophic, leading to a Level-7 nuclear disaster with over \$200B in damages and cleanup costs. To address this high-risk event, the suggested solution is to **reevaluate safety measures** based on updated risk assessments. This includes considering potential higher magnitude

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Other Project Deliverables with ChatGPT

Problem-solving techniques	Briefing Note	Knowledge Management	Requirements Traceability Matrix	Meeting Minutes & Action Items
Innovation & Idea Generation	Resource Allocation Plan	Quality Assurance	Earned Value Management	Task Prioritization
Competitive Analysis	Stakeholder Management Plan	Feasibility	Power/Interest Grid	Change Request
Project Summarization	Project Management Plan	Training Plan	Critical Path	Acceptance Form
Project Decision-making	Procurement and Contract Management	Project Closure	Project Schedule	Registers
Business Case	Budget and Financial	Disaster Recovery/Contingency Plan	Cause and Effect Diagram	Post Implementation
Project Charter	Forecasting	Vendor Management	User Stories	Deployment
SOW	Communication Plan	Project Audit & Guidelines	Agile Personas	
RFP, RFI, RFQ	Change Management	Status & Progress	Risk Analysis	